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10/535,420	05/19/2005	Yongmin Li	36-1899	9337

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EXAMINER	
PONTIUS, JAMES M	

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2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/535,420	LI ET AL.	
	Examiner	**Art Unit**	
	James Pontius	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 13-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2010* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *10/20/2009; 01/07/2010*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant’s arguments, filed 01/07/2010, with respect to the 35 U.S.C. 101 statutory category rejection of claims 1-11 have been fully considered and are persuasive. The 35 U.S.C. 101 statutory category rejection of claims 1-11 has been withdrawn. It is noted, however, that the 35 U.S.C. 101 non-statutory subject matter rejection of claims 1-11 has been maintained since the specification at page 11, line 33 – page 12, line 4, indicates that the invention can be implemented in software. Since the software is not embodied within a computer readable medium, the invention is directed towards non-statutory subject matter, and therefore needs to be removed from the specification.

2. Applicant's arguments, filed 01/07/2010, with respect to the 35 U.S.C. 102 and 103 rejections of claims 1-24 have been fully considered but they are not persuasive.

3. Applicant argues that Subramaniyan fails to disclose:

b) determining, using one or more computer processing systems, one or more further motion estimations representative of the global motion between the particular frame and its anchor frame at least partially on the basis of motion vectors between the particular frame and one or more preceding or succeeding other frames; and

c) selecting, using one or more computer processing systems, one of the motion estimations which meets at least one predetermined criterion as being representative of the global motion of the frame.

Examiner respectfully disagrees.

As stated in [0030] of Subramaniyan, the “global motion vector is estimated by the motion estimation circuit 110 as the average of all final motion vectors of the previous frame”. Thus Subramaniyan is able to determine a motion estimation representative of the global motion between the particular frame and its anchor frame on the basis of an average of motion vectors therebetween, which satisfies claim limitation (a). This is reaffirmed in [0035] of Subramaniyan, which states that “the motion estimation circuit 110 can determine the global motion vector by using an average of all final motion vectors in a previous frame”.

As stated in [0034] of Subramaniyan, “further motion vector predictors can be determined based on the result of motion estimation done for the same macroblock, but on a different previously coded frame”. Thus Subramaniyan discloses further motion vector predictors based on a previous frame that is different from the previous frame initially used. Using these further motion vectors predictors in light of how global motion vectors in Subramaniyan are determined, Subramaniyan is capable of determining a further motion estimation representative of the global motion between the particular

frame and its anchor frame at least partially on the basis of an average of motion vectors between the particular frame and one or more preceding or succeeding other frames, which satisfies limitation (b). This is reaffirmed in [0026] of Subramaniyan, which states that “motion estimation is computed for blocks of image data from a current image frame using one or more previously processed image frames”.

As stated in [0030] of Subramaniyan, “global motion vector is estimated by the motion estimation circuit 110 as the average of all final motion vectors of the previous frame for which a difference metric was below a certain threshold THRESH1”. Since the final motion vectors are subject to a difference metric and the final motion vectors are used to form the global motion vector, the global motion vector is subject to a predetermined criterion. By determining global motion in such a manner, global motion is contemporaneously selected upon its determination. Thus Subramaniyan is capable of selecting one of the motion estimations which meets at least one predetermined criterion as being representative of the global motion of the frame, which satisfies limitation (c). This is reaffirmed in [0035] of Subramaniyan, which states that “the motion estimation circuit 110 can determine the global motion vector by calculating a difference metric for each of final motion vectors in a previous frame, comparing the difference metric for each of the final motion vectors in the previous frame with a predetermined threshold, and determining the global motion vector based on the each of the final motion vectors in a previous frame with a difference metric that is below the threshold”.

4. Applicant argues that since Subramaniyan only describes generating a single global motion value, no selection between alternative values is possible. Examiner respectfully disagrees. Subramaniyan is capable of generating first and further global motion values, as shown above.

Claim Objections

5. Claim 5 is objected to because of the following informalities: the phrase “according to any of claim 3” should read “according to claim 3”. Appropriate correction is required.

6. Claim 6 is objected to because of the following informalities: the preamble of claim 6 indicates that claim 6 is dependant on claim 1, however the body of claim 6 references “using the method of any of the preceding claims”. Appropriate correction is required.

7. Claim 19 is objected to because of the following informalities: the preamble of claim 19 indicates that claim 19 is an independent claim, however the body of claim 19 indicates that the claim is a dependant claim by referencing preceding claim 14. Examiner considered claim 19 as if the claim was independent. Appropriate correction is required.

Claim Rejections - 35 USC § 101

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claim 1-11 are rejected under 35 U.S.C. 101 because invention is directed towards non-statutory subject matter (Please see the MPEP 2106 Section IV. Determine Whether the Claimed Invention Complies with 35 U.S.C. 101). The specification at page 11, line 33 – page 12, line 4, indicates that the invention can be implemented in software. Since the software is not embodied within a computer readable medium, the invention is directed towards non-statutory subject matter, and therefore needs to be removed from the specification.

Claim Rejections - 35 USC § 102

10. Claims 1-4, and 13-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Subramaniyan et al. (US Patent Application Publication # 2004/0028134 A1).

11. Regarding claim 1, Subramaniyan discloses:

A computer-implemented method of global motion estimation between frames of a motion-compensated inter-frame encoded video sequence, each frame of the sequence having a plurality of motion vectors encoded therein relating the frame to a preceding and/or succeeding frame of the sequence, the method comprising, for a particular frame:

a) determining, using one or more computer processing systems, a motion estimation representative of the global motion between the particular frame and its anchor frame on the basis of motion vectors therebetween (As stated in [0030] of Subramaniyan, the “global motion vector is estimated by the motion estimation circuit 110 as the average of all final motion vectors of the previous frame”. Thus Subramaniyan is able to determine a motion estimation representative of the global motion between the particular frame and its anchor frame on the basis of an average of motion vectors therebetween, which satisfies claim limitation (a). This is reaffirmed in [0035] of Subramaniyan, which states that “the motion estimation circuit 110 can determine the global motion vector by using an average of all final motion vectors in a previous frame”.);

b) determining, using one or more computer processing systems, one or more further motion estimations representative of the global motion between the particular frame and its anchor frame at least partially on the basis of motion vectors between the particular frame and one or more preceding or succeeding other frames (As stated in [0034] of Subramaniyan, “further motion vector predictors can be determined based on the result of motion estimation done for the same macroblock, but on a different previously coded frame”. Thus Subramaniyan discloses further motion vector predictors based on a previous frame that is different from the previous frame initially used. Using these further motion vectors predictors in light of how global motion vectors in Subramaniyan are determined, Subramaniyan is capable of determining a further motion estimation representative of the global motion between the particular frame and

its anchor frame at least partially on the basis of an average of motion vectors between the particular frame and one or more preceding or succeeding other frames, which satisfies limitation (b). This is reaffirmed in [0026] of Subramaniyan, which states that "motion estimation is computed for blocks of image data from a current image frame using one or more previously processed image frames".); and

c) selecting, using one or more computer processing systems, one of the motion estimations which meets at least one predetermined criterion as being representative of the global motion of the frame (As stated in [0030] of Subramaniyan, "global motion vector is estimated by the motion estimation circuit 110 as the average of all final motion vectors of the previous frame for which a difference metric was below a certain threshold THRESH1". Since the final motion vectors are subject to a difference metric and the final motion vectors are used to form the global motion vector, the global motion vector is subject to a predetermined criterion. By determining global motion in such a manner, global motion is contemporaneously selected upon its determination. Thus Subramaniyan is capable of selecting one of the motion estimations which meets at least one predetermined criterion as being representative of the global motion of the frame, which satisfies limitation (c). This is reaffirmed in [0035] of Subramaniyan, which states that "the motion estimation circuit 110 can determine the global motion vector by calculating a difference metric for each of final motion vectors in a previous frame, comparing the difference metric for each of the final motion vectors in the previous frame with a predetermined threshold, and determining the global motion vector based on the each of the final motion vectors in a previous frame with a difference metric that

is below the threshold”.).

12. Regarding claim 2, Subramaniyan discloses:

A method according to claim 1, wherein the determining step b) further comprises the steps of:

e) determining one or more motion estimations representative of the global motion of the frame with respect to one or more respective preceding or succeeding other frames ([0035]; [0026], motion estimation is computed for blocks of image data from a current image frame <u>using one or more previously processed image frames</u>);

f) determining one or motion estimations respectively representative of the global motion of the one or more other frames with respect to the anchor frame ([0035]; the motion estimation circuit 110 can <u>determine the global motion vector</u> by using an average of <u>all final motion vectors in a previous frame</u>); and

g) accumulating the respective motion estimations to give one or more respective overall motion estimations each substantially representative of the global motion of the frame with respect to the anchor frame ([0035], the motion estimation circuit 110 can <u>determine</u> the global motion vector by <u>using an average</u> of all final motion vectors in a previous frame).

13. Regarding claim 3, Subramaniyan discloses:

A method according to claim 1, wherein the selecting step c) further comprises

testing the motion estimations in turn ([0035], comparing the difference metric for each of the final motion vectors in the previous frame with a predetermined threshold; [0049], This process continues until one of 3 conditions are met: [0050], CONDITION 1: The MSAD is below a threshold THRESH4, given by: THRESH4=A*Q+B); and

outputting a motion estimation as being representative of the global motion of the frame if it passes the test, wherein the test is applied in turn to motion estimations once they have been determined ([0035], determining the global motion vector based on the each of the final motion vectors in a previous frame with a difference metric that is below the threshold; [0049], This process continues until one of 3 conditions are met: [0050], CONDITION 1: The MSAD is below a threshold THRESH4, given by: THRESH4=A*Q+B), and if the test is passed then no further motion estimations are determined ([0049], This process continues until one of 3 conditions are met: [0050], CONDITION 1: The MSAD is below a threshold THRESH4, given by: THRESH4=A*Q+B).

14. Regarding claim 4, Subramaniyan discloses:

A method according to claim 3, wherein the test comprises

comparing the motion estimation with a threshold value ([0049]-[0050], THRESH4), wherein the test is passed if the parameters of the motion estimation do not exceed the threshold value ([0049]-[0050], [0054] The best MV at the end of the second stage is chosen as the best MV for the macroblock; the MV having a MSAD below

THRESH4 is chosen as the best MV)

15. Regarding claim 13, Subramaniyan discloses:

A computer readable storage medium storing a computer program or suite of programs such that when executed on at least one computer system the program or suite of programs causes the at least one computer system to perform the method of claim 1 ([0085]).

16. Regarding claim 14, Subramaniyan discloses the system limitations of this claim as discussed above with respect to claim 1.

17. Regarding claim 15, Subramaniyan discloses the system limitations of this claim as discussed above with respect to claim 2.

18. Regarding claim 16, Subramaniyan discloses the system limitations of this claim as discussed above with respect to claim 3.

19. Regarding claim 17, Subramaniyan discloses the system limitations of this claim as discussed above with respect to claim 4.

Claim Rejections - 35 USC § 103

20. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subramaniyan et al. (US Patent Application Publication # 2004/0028134 A1) in view of Jinzenji et al. (US Patent # 6,977,664 B1).

21. Regarding claim 6,

Subramaniyan teaches:

A method according to claim 1 (as shown above)

Subramaniyan fails to teach:

further comprising generating panoramic images from a motion-compensated inter-frame encoded video sequence, the generating comprising:

for each frame of the sequence, determining the global motion of each frame with respect to its anchor frame using the method of any of the preceding claims; and

generating at least one panoramic image representing the frames of the video sequence using the global motion estimations thus determined.

Jinzenji discloses:

further comprising generating panoramic images from a motion-compensated inter-frame encoded video sequence, the generating comprising:

for each frame of the sequence, determining the global motion of each frame with respect to its anchor frame using the method of any of the preceding claims (Jinzenji col 8, line 32-56; global motion is obtained in step 1); and

generating at least one panoramic image representing the frames of the video sequence using the global motion estimations thus determined (Jinzenji col 8, line 32-56; a provisional sprite <panoramic image> is generated).

It would have been obvious to a person having ordinary skill in the art to combine the teachings of Jinzenji with Subramaniyan. Using the panoramic generating means of Jinzenji would allow for creation of a panoramic image based on the global motion of Subramaniyan, thereby allowing a user to implement an established use for global motion.

22. Regarding claim 7,

Jinzenji teaches:

A method according to claim 6, wherein the generating step further comprises:

selecting a particular frame of the sequence as a reference frame, the plane of the reference frame being a reference plane (Jinzenji col 8, line 32-56; the reference coordinate system which is for the reference frame);

for each frame other than the reference frame, accumulating the global motion estimations from each frame back to the reference frame (Jinzenji col 8, line 32-56;

each original image of the arbitrary frames is mapped to a reference coordinate system which is for the reference frame);

warping each frame other than the reference frame onto the reference plane using the accumulated global motion estimations to give one or more pixel values for each pixel position in the reference plane (Jinzenji col 8, line 32-56; frame warping occurs when frames are mapped to the reference coordinate system using global motion so as to insert or overwrite pixels); and

for each pixel position in the reference plane, selecting one of the available pixel values for use as the pixel value in the panoramic image (Jinzenji col 8, line 32-56; a pixel value of a point is obtained from pixel values which exist in the same point).

23. Regarding claim 8,

Jinzenji teaches:

A method according to claim 7, wherein the selecting step comprises selecting a substantially median pixel value from the available pixel values for use in a background panoramic image (Jinzenji col 10, line 8-11; for a plurality of pixels which are mapped to the same coordinates, a median value of the pixels is selected as the value of the coordinates of the provisional sprite).

24. Regarding claim 9,

Jinzenji teaches:

A method according to claim 7, wherein the selecting step comprises selecting a

substantially most different pixel value from the available pixel values for use in a foreground panoramic image (Jinzenji col 8, line 47-51; using a threshold to select the most different pixel).

25. Claims 5 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subramaniyan et al. (US Patent Application Publication # 2004/0028134 A1) in view of Lee et al. (US Patent Application Publication # 2003/0103568 A1).

26. Regarding claim 5,

Subramaniyan teaches:

A method according to any of claim 3 (as shown above),

Subramaniyan does not teach:

wherein if the test is failed, the method further comprises:

interpolating between the motion estimations of adjacent frames to give an interpolated motion estimation which is then output as the motion estimation representative of the global motion of the frame.

Lee teaches:

wherein if the test is failed, the method further comprises:

interpolating between the motion estimations of adjacent frames to give an interpolated motion estimation which is then output as the motion estimation representative of the global motion of the frame (Lee: [0061]-[0063]).

At the time of invention, it would have been obvious to a person having ordinary skill in the art to combine the teachings of Lee with Subramaniyan. The teachings of Lee provide for motion compensated interpolation that eliminates blocking artifacts (Lee [0048]), thereby increasing the ability of Subramaniyan to generate accurate global motion in the presence of blocking artifacts.

27. Regarding claim 18, Subramaniyan in view of Lee discloses the system limitations of this claim as discussed above with respect to claim 5.

28. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subramaniyan et al. (US Patent Application Publication # 2004/0028134 A1) in view of Jinzenji et al. (US Patent # 6,977,664 B1), as applied to claim 7 above, and further in view of Szeliski et al. (US Patent # 6,348,918 B1).

29. Regarding claims 10-11,

Subramaniyan in view of Jinzenji teaches:

A method according to claim 7 (as shown above),

Subramaniyan in view of Jinzenji fails to teach:

wherein the selecting step comprises:

calculating the mean pixel value of the available pixel values;

calculating the L1 distance between each available pixel value and the calculated mean pixel value; and

select the pixel value with the median L1 distance for use in a background panoramic image.

select the pixel value with the maximum L1 distance for use in a foreground panoramic image.

Szeliski teaches:

wherein the selecting step comprises:

calculating the mean pixel value of the available pixel values (Szeliski col 8, line 57-65; taking the mean of the color or intensity values);

calculating the L1 distance between each available pixel value and the calculated mean pixel value (Szeliski col 8, line 57-65; where the averaging is weighted by the distance of each pixel from the nearest invisible pixel); and

select the pixel value with the median L1 distance for use in a background panoramic image (Szeliski col 8, line 57-65; using the median technique).

select the pixel value with the maximum L1 distance for use in a foreground panoramic image (Szeliski col 8, line 57-65; the simplest technique is the median technique, but many others exist. This portion of Szeliski discloses blending specifically

for a background image. This portion of Szeliski also discloses blending generally. Instead of using the median technique for blending background pixels, a maximum technique is obvious for blending foreground pixels. This is because foreground pixels are most different from background pixels).

It would have been obvious to a person having ordinary skill in the art to combine the teachings of Szeliski with Subramaniyan in view of Jinzenji. Using the blending technique of Szeliski would smooth out disparities of the panoramic image of Subramaniyan in view of Jinzenji, thus creating a panoramic image with increased image quality (Szeliski col 9, line 6-8).

30. Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subramaniyan et al. (US Patent Application Publication # 2004/0028134 A1) in view of Jinzenji et al. (US Patent # 6,977,664 B1).

31. Regarding claim 19,

Subramaniyan teaches:

A system for generating panoramic images from a motion-compensated inter- frame encoded video sequence, comprising:

a system for global motion estimation between frames of a motion-compensated inter-frame encoded video sequence as claimed in claim 14, and further arranged to provide global motion estimations for each frame (Subramaniyan: [0035]; the motion

estimation circuit 110 can <u>determine the global motion vector</u> by using an average of all <u>final motion vectors in a previous frame</u>);

Subramaniyan fails to teach:

panoramic image generating means for generating at least one panoramic image representing the frames of the video sequence using the global motion estimations thus determined.

Jinzenji teaches:

panoramic image generating means for generating at least one panoramic image representing the frames of the video sequence using the global motion estimations thus determined (Jinzenji col 8, line 32-56; a provisional sprite <panoramic image> is generated).

It would have been obvious to a person having ordinary skill in the art to combine the teachings of Jinzenji with Subramaniyan. Using the panoramic generating means of Jinzenji would allow for creation of a panoramic image based on the global motion of Subramaniyan, thereby allowing a user to implement an established use for global motion.

32. Regarding claim 20,

Jinzenji teaches:

wherein the panoramic image generating means is further arranged in use to:

select a particular frame of the sequence as a reference frame, the plane of the reference frame thereby being a reference plane (Jinzenji col 8, line 32-56; the reference coordinate system which is for the reference frame);

for each frame other than the reference frame, accumulate the global motion estimations from each frame back to the reference frame (Jinzenji col 8, line 32-56; each original image of the arbitrary frames is mapped to a reference coordinate system which is for the reference frame);

warp each frame other than the reference frame onto the reference plane using the accumulated global motion estimations to give one or more pixel values for each pixel in the reference plane (Jinzenji col 8, line 32-56; frame warping occurs when frames are mapped to the reference coordinate system using global motion so as to insert or overwrite pixels); and

for each pixel position in the reference plane, select one of the available pixel values for use as the pixel value in the panoramic image (Jinzenji col 8, line 32-56; a pixel value of a point is obtained from pixel values which exist in the same point).

33. Regarding claim 21,

Jinzenji teaches:

wherein the panoramic image generating means is further arranged to select a substantially median pixel value from the available pixel values for use in a background panoramic image (Jinzenji col 10, line 8-11; for a plurality of pixels which are mapped to

the same coordinates, a median value of the pixels is selected as the value of the coordinates of the provisional sprite).

34. Regarding claim 22,

Jinzenji teaches:

wherein the panoramic image generating means is further arranged to select a substantially most different pixel value from the available pixel values for use in a foreground panoramic image (Jinzenji col 8, line 47-51; using a threshold to select the most different pixel).

35. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subramaniyan et al. (US Patent Application Publication # 2004/0028134 A1) in view of Jinzenji et al. (US Patent # 6,977,664 B1) as applied to claim 19 above, and further in view of Szeliski et al. (US Patent # 6,348,918 B1).

36. Regarding claim 23 and 24,

Subramaniyan in view of Jinzenji teaches:

A system according to claim 19 (as shown above),

Subramaniyan in view of Jinzenji fails to teach:

wherein the panoramic image generating means is further arranged to:

calculate the mean pixel value of the available pixel values;

calculate the L1 distance between each available pixel value and the calculated mean pixel value; and

select the pixel value with the median L1 distance for use in a background panoramic image.

select the pixel value with the maximum L1 distance for use in a foreground panoramic image.

Szeliski teaches:

wherein the panoramic image generating means is further arranged to:

calculate the mean pixel value of the available pixel values (Szeliski col 8, line 57-65; taking the mean of the color or intensity values);

calculate the L1 distance between each available pixel value and the calculated mean pixel value (Szeliski col 8, line 57-65; where the averaging is weighted by the distance of each pixel from the nearest invisible pixel); and

select the pixel value with the median L1 distance for use in a background panoramic image (Szeliski col 8, line 57-65; using the median technique).

select the pixel value with the maximum L1 distance for use in a foreground panoramic image (Szeliski col 8, line 57-65; the simplest technique is the median technique, but many others exist. This portion of Szeliski discloses blending specifically for a background image. This portion of Szeliski also discloses blending generally. Instead of using the median technique for blending background pixels, a maximum

technique is obvious for blending foreground pixels. This is because foreground pixels are most different from background pixels).

It would have been obvious to a person having ordinary skill in the art to combine the teachings of Szeliski with Subramaniyan in view of Jinzenji. Using the blending technique of Szeliski would smooth out disparities of the panoramic image of Subramaniyan in view of Jinzenji, thus creating a panoramic image with increased image quality (Szeliski col 9, line 6-8).

Conclusion

37. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Pontius whose telephone number is (571) 270-7687. The examiner can normally be reached on Monday - Thursday, 8 AM - 4 PM est..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James Pontius/
Examiner, Art Unit 2621

/Dave Czekaj/
Primary Examiner, Art Unit 2621